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(54) **METHOD AND APPARATUS FOR
DIFFRACTION MEASUREMENT USING A
SCANNING X-RAY SOURCE**

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378/137

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(57) **ABSTRACT**

The present invention relates to x-ray diffraction measurement by using moving x-ray source x-ray diffraction. The invention comprises a raster-scanned x-ray source, a specimen, a collimator, and a detector. The x-ray source is electronically scanned which allows a complete image of the x-ray diffraction characteristics of the specimen to be produced. The specimen is placed remote from the x-ray source and the detector. The collimator is located directly in front of the detector. The x-rays are diffracted by the specimen at certain angles, which cause them to travel through the collimator and to the detector. The detector may be placed in any radial location relative to the specimen in order to take the necessary measurements. The detector can detect the intensity and/or the wavelength of the diffracted x-rays. All information needed to solve the Bragg equation as well as the Laue equations is available. The x-ray source may be scanned electronically or mechanically. The present invention is used to perform texture analysis and phase identification.

48 Claims, 13 Drawing Sheets

